

REMARKS

This paper is responsive to the Office Action mailed September 25, 2007 in connection with the above-identified patent application. In that action, claims 1, 2, 14-16, and 18 were rejected under 35 USC § 102(e) as being anticipated by US Patent No. 6,665,684 to Zait, et al. Further in that Action, claims 3-6, 8, 9, 11, and 12 were rejected under 35 USC § 103(a) as being unpatentable over Zait in view of US Patent No. 6,965,891 to Jakobsson, et al. Still further in that action, claims 7 and 10 were rejected under 35 USC § 103(a) as being unpatentable over Zait in view of Jakobsson and further in view of US Patent No. 5,664,172 to Antoshenkov. Yet further in that action, claims 13, 17, 19, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Zait in view of US Patent No. 6,014,656 to Hallmark, et al. The Action was made final.

THE NON-ART REJECTIONS

It is to be noted that claims 1-18 were previously rejected under 35 USC § 101 as being directed to non-statutory subject matter. That rejection was not applied or reiterated by the Examiner in the Office Action of September 25, 2007 and, accordingly, applicant considers it to be removed.

All claims are allowable under 35 USC § 101.

THE ART REJECTIONS

As noted above, claims 1, 2, 14-16, and 18 were rejected under 35 USC § 102(e) as being anticipated by Zait, and claims 3-13, 17, 19, and 20 were rejected

under 35 USC § 103(a) as being obvious in view of various prior art teachings.

Those rejections are respectfully traversed as set out in detail below.

All Claims Are Patentable Over Zait, et al.:

The Office Action asserts as to claim 1 that the Zait '684 patent teaches a method comprising fragmenting a database into a plurality of database fragments using at least one fragmentation expression, the at least one fragmentation expression corresponding to one of the plurality of database fragments, and including a boolean combination of one or more comparison-predicates wherein each comparison-predicate defines a range of a fragmentation dimension basis function of one or more database fields, processing a database query against the database fragments of the database based on the boolean combination of the one or more comparison-predicates, and providing results of the processing to a user of the database.

Applicant respectfully traverses the Examiner's rejections of the claims and, particularly with regard to the anticipation rejection in connection with the Zait '684 patent. Applicant does not concede that the Zait '684 patent teaches fragmenting a database into a plurality of database fragments using at least one fragmentation expression as set out in independent claim 1 of the present application. More particularly, the method of claim 1 includes limitations of fragmenting a database, processing a database query against the database fragments, and providing results of the processing to a user of the database. The fragmenting includes fragmenting the database into a plurality of database fragments using at least one fragmentation expression, at least one fragmentation expression corresponding to one of the

plurality of database fragments, and including a boolean combination of one or more comparison-predicates wherein each comparison-predicate defines a range of a fragmentation dimension basis function of one or more database fields. The processing includes processing a database query against the database fragments of the database, based on the boolean combination of the one or more comparison-predicates. The providing includes providing results of the processing to a user of the database. Essentially, each comparison-predicate defines a range of a function, the recited function being a fragmentation dimension basis function. Similar limitations are included in each of independent claims 14 and 19 as well.

The Examiner cites to the Zait '684 patent at column1, lines 38-67 in the Office Action. At the top of page 3 of the action, the Examiner equates the "boolean combination of one or more comparison-predicates" recited in claim 1 of the present application as being the comparisons "values less than to_date (yy/mm/dd, '94-04-01')" set out at the bottom of column 1 of the Zait patent. However, independent claim 1 recites "a boolean combination of one or more comparison-predicates wherein each comparison-predicate defines a range of a fragmentation dimension basis function of one or more database fields." Although applicant does not concede equivalence, the "values less than ..." cited by the Examiner might be considered to represent a boolean combination of one or more comparison-predicates wherein each comparison predicate defines a range within one or more database fields but, it is respectfully submitted, does not define a range of a fragmentation dimension basis function of one or more database fields.

It is respectfully submitted that the Zait '684 patent does not teach a fragmentation dimension basis function of one or more database fields. The

Examiner has taken the position in the Office Action that the example listed in Zait is a fragmentation dimension basis function because, according to the Examiner, it is part of the function "partition" and it defines the range of the dimension basis (values less than to_date). However, independent claim 1, recites that the fragmentation dimension basis function is a function of one or more database fields. In addition, the fragmentation dimension basis function itself has a range as set out in independent claim 1. As is well known in the mathematical arts, functions express dependence between two quantities, one of which is given by the independent variable argument to the function (its input) and the other is produced as a dependent variable value of the function (its output). The collection of all acceptable inputs of a function is typically called its domain whereas the set of all resulting outputs is typically called the "range" of the function. In independent claim 1, each comparison-predicate defines a range of a fragmentation dimension basis function, the function being of one or more database fields.

In contradistinction thereto, the "comparison-predicates" of the type "partition... values less than..." cited by the Examiner simply define, at most, a range of one or more database fields rather than defining a range of a function (a fragmentation basis function) of one or more database fields.

Overall, therefore, applicant respectfully submits that although the example shown at the bottom of column 1 of the Zait '684 patent might show a "comparison-predicate" defining a range of one or more database fields, it falls short of teaching a comparison-predicate defining a range of a fragmentation dimension basis function of one or more database fields. This is clearly set out in independent claim 1 of the present application.

In addition to the above, independent claim 14 recites a fragmented database comprising a fragmentation scheme and a plurality of database fragments. The fragmentation scheme includes one or more fragmentation dimension basis functions wherein each fragmentation dimension basis function depends upon one or more database fields, and a plurality of fragmentation expressions, each fragmentation expression being defined by a boolean combination of comparison-predicates wherein each comparison-predicate defines a range of one or the fragmentation dimension basis functions. Again, although the Zait '684 patent might teach a "comparison-predicate" which defines a range of one or more database fields, it falls short of teaching a comparison-predicate defining a range of one of the fragmentation dimension basis functions, the functions depending upon one or more of the database fields. It is respectfully submitted that this limitation is set out in independent claim 14 of the present application.

Lastly, independent claim 19 recites a limitation for "program code for constructing a fragmented database having a fragmentation scheme constructed using fragmentation dimension basis functions, each fragmentation dimension basis function configured to compute a value based upon at least one database field" and a limitation for "program code for inserting a new record into the fragmented database, the inserting including (i) computing values of the fragmentation dimension basis functions using the at least one database field of the new record, (ii) selecting a target database fragment based on the fragmentation scheme and the computed values of the fragmentation dimension basis functions, and (iii) inserting the new record into the target database fragment." Each of the recited limitations recites fragmentation based on computed values of fragmentation dimension basis functions

similar to the above-described features of independent claim 1. This method of fragmentation is neither taught nor fairly suggested by the range-based and hash-based fragmentation schemes described in the Zait '684 patent. Again, the fragmentation scheme recited in claim 19 determines fragments based on the range of computed output values of a basis function rather than one the range of values of the database field itself as described in the Zait '684 patent. As previously discussed above with reference to claims 1 and 14, the Zait '684 patent appears to not discuss any functions other than hash functions which are unlike those of the basis functions described in the present application.

Applicant reiterates each of the arguments set forth previously with regard to the secondary references of Jakobsson, Antoshenkov, and Hallmark.

Thus, for at least the above reasons, it is respectfully submitted that each of independent claims 1, 14, and 19 and claims 2-13, 15-18, and 20 dependent therefrom, respectively, are patentably distinct over the Zait '684 patent alone or in combination with any of the other secondary references cited and applied by the Examiner.

REQUEST FOR INTERVIEW

Applicant again respectfully requests that the Examiner grant an interview with applicant's representative identified below in order to best expedite prosecution of this application in the event that any formal or informal matters remain after the instant response is entered into the record and considered.

CONCLUSION

In view of the above comments and arguments presented, applicant respectfully submits that all pending claims (claims 1-20) are patentably distinct and unobvious over the art of record.

Allowance of all pending claims and early notice to that effect is respectfully requested.

Respectfully submitted,

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